

(2/23/90)

ER PROGRAM DATA ASSESSMENT
SUMMARY REPORT FORM

Batch No. 8909S083 - E0734 Site Area 2 - Hillside
Laboratory TMA/Eberline No. of Samples/Matrix 6/Water
Reviewer Org. TechLaw, Inc.
Sample Numbers SW070006, SW069006, SW068006, SW067006, SW066006, SW031006

Tritium Analyses by Liquid Scintillation
Data Assessment Summary

| | H ³ | Comments |
|--|----------------|---------------------------|
| 1. Holding Times | <u>V</u> | |
| 2. Initial and Continuing Calibrations | <u>V</u> | |
| 3. Blanks | <u>V</u> | |
| 4. Lab Replicates | <u>V</u> | |
| 5. Lab Control Samples | <u>R</u> | <u>See Action Item 1.</u> |
| 6. Quench and Efficiency | <u>X</u> | <u>See Action Item 2.</u> |
| 7. Sample Calculations | <u>V</u> | |
| 8. Overall Assessment | <u>R</u> | <u>See Comments.</u> |

V = Data had no problems.

A = Data acceptable but qualified due to problems.

R = Data rejected.

X = Problems, but do not affect data.

Data Quality: Data contained in this batch were reviewed and found to be rejected. Refer to Action Items and Comment

Sections for discussion.

ADMIN RECORD

"REVIEWED FOR CLASSIFICATION"

REVIEWED FOR CLASSIFICATION/UCM

By George H. Seelock

Date 6/27/90

By R. B. Hoffman
Date 7-11-90

e0734/rk38

A-OU01-000059

Action Items: 1) Lab Control Samples: The observed value of four Lab Control Samples (LCS) run 12/20/89 fell outside 3 σ of the expected value. As a result the tritium samples run 12/20/89 were flagged (R) rejected.

2) The laboratory SOP for tritium dated 2/80 was not followed for the analysis. However, the procedure used conformed to current laboratory practices and does not affect the data.

Comments: 1) The reported value of the laboratory control sample was 55,800 +/- 1100 pCi/L, 52,000 +/- 1100 pCi/L, 42,800 +/- 900 pCi/L, and 50,000 +/- 1000 pCi/L. The expected value was 48,400 pCi/L. The minimum detectable activity of the analysis was 400 pCi/L. The lab control samples were blank spikes. The laboratory Quality Control Procedure dated 12/5/84 states that corrective action will be taken if the "quality control values are outside the 3 sigma control limits".

2) The tritium standard reference material traceable to NIST Material 4927-C was diluted 11/5/86, the secondary standard solution used for the Lab Control Standard was diluted 9/13/89. The primary standard solution had reached its expiration date for performance tests.

3) The LCS and Blanks data provided for 12/20/89 showed that the tSIE (quench monitor) values were consistent.

Note: Data Summary Tables are attached.

Marilyn Ayers
Reviewer Signature

2-28-90
Date

RADIOCHEMICAL ANALYSIS ANALYTICAL RESULTS (pCi/L)

TABLE #: 8909S083 - E0734

SITE NAME: Area 2 - Hillside

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| Sample Location | SW070006 | SW069006 | SW068006 | SW067006 | SW066006 | SW031006 | Reagent Blank | Reagent Blank | Reagent Blank |
|---------------------|----------|----------|----------|----------|----------|----------|---------------|---------------|---------------|
| Sample Number | 9/26/89 | 9/26/89 | 9/26/89 | 9/26/89 | 9/26/89 | 9/26/89 | 12/20/89 | 12/20/89 | 12/20/89 |
| Sample Date | Water | Water | Water | Water | Water | Water | Water | Water | Water |
| Matrix | DL | DL | DL | DL | DL | DL | DL | DL | DL |
| Parameter | Val. | DQ | Val. | DQ | Val. | DQ | Val. | DQ | Val. |
| Gross Alpha | 2 | | | | | | | | |
| Gross Beta | 4 | | | | | | | | |
| Total Strontium | 1 | | | | | | | | |
| Total Cesium | 1 | | | | | | | | |
| Radium 228 | 1 | | | | | | | | |
| Tritium | 400 | 70 U | 240 | R | -130U | 220 | R | 140 U | 230 |
| Uranium 234 & 233 | 0.6 | | | | | | | | |
| Uranium 235 | 0.6 | | | | | | | | |
| Uranium 238 | 0.6 | | | | | | | | |
| Plutonium 239 & 240 | 0.01 | | | | | | | | |
| Americium 241 & 242 | 0.01 | | | | | | | | |
| Radium 226 | 0.05 | | | | | | | | |
| Gamma scan | | | | | | | | | |
| Other Isotopes | | | | | | | | | |

U Indicates the parameter was not detected above the Instrument Quantitation Limit
J Quantitation is approximate due to limitations identified during the quality control review
. Value is rejected due to other contractual criteria examined during the quality control review
.. Value is rejected due to blank contamination identified during the quality control review
DL Detection Limit in PicoCuries per Liter (pCi/L)

DQ Data Qualifier
V Valid
A Acceptable with qualifications
R Rejected
e0734L/tk38

EG&G ER Program
Rocky Flats Plant

EG&G ER Program
Rocky Flats Plant

**Radiochemical Data Completeness
Checklist for Tritium Analyses of Soil and Water**

- A. Yes Case Narrative
 Yes Abnormalities explained
 Yes Matrix Problems explained
 Yes Instrument problems explained
 Yes Improper collection, storage, preservation, container explained
 Yes Hold times met, explained if not met
- B. Yes Initial and Continuing Calibration Data Package
 Yes Detector ID with Program Settings
 Yes Date of Performance Check
 Yes Batch Number
 Yes NIST Traceable Standards with Certification Date and DPMs
 No Quench Monitor Values and CPM for Standard used to check long
 term performance of cocktail and instrument
 Yes Background-Blank vials CPM Results
- C. Yes Blanks Data Package
 Yes Detector ID
 Yes Date Analyzed
 Yes Collection Date
 Yes Sample IDs counted with blank
 Yes Detection Level reported
- D. Yes Lab Replicate Data Package
 Yes Detector ID
 Yes Date Analyzed
 Yes Collection Date
 Yes Value obtained for sample, replicates, mean values
 Yes Count Durations of samples and backgrounds
 Yes Statistical analysis of Range, Control Limits
- E. Yes Lab Control Samples Data Package
 Yes Sample ID, Detector ID
 Yes Values obtained, true value of sample
 Yes Statistical Analysis of Results
- F. Yes Minimum Detectable Activity
 Yes Background measurements
 Yes Detector ID
 Yes Date of count
 Yes Calculated MDA comparison with Required Detection Level

- G. Yes Quench and Efficiency
 Yes Quench Monitor used
 Yes Quench Monitor Values and Efficiency Values
 Yes Detector ID
 Yes NBS traceable standards with certification date and DPM
 Yes Batch number and sample IDs; Efficiency standard and
 backgrounds used
 Yes Volume added to cocktail
 Yes Cocktail used
 No Vials used
- H. Yes Sample Data Package
 Yes Printed Report of results for sample, reruns
 Yes Computer calculations
 Yes Analyst initials
 Yes Raw Data from counter, copies of notebook pages
 No Instrument log to identify the sample ID with the raw data
 from the counter